

GODERICH

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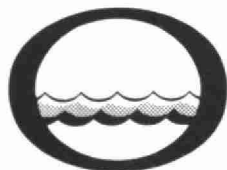
Division of Plant Operations

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Water management in Ontario

Ontario
Water Resources
Commission

135 St. Clair Ave. W.
Toronto 7
Ontario

We are pleased to present you with the Operating Summary for the water treatment facilities operated for you during 1968.

Both the financial and technical information presented should be of assistance to your present and future planning in this important phase of municipal activity.

A new format has been devised to allow greater readability with equally detailed content. We trust that this will meet with your approval.

Our staff wish to express their appreciation for your co-operation throughout the year.



D. S. Caverly,
General Manager.



D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

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GODERICH
water treatment plant

operated for

THE TOWN OF GODERICH

by the

ONTARIO WATER RESOURCES COMMISSION

1968 ANNUAL OPERATING SUMMARY

FOREWORD

● This operating summary outlines the project's technical capabilities and financial status in 1968. Such information mirrors past and present performance, but a major intention is to anticipate the future -- to solve problems before they occur.

The new format in which this year's data are presented is designed to offer a higher level of readability than in the past, without a corresponding decrease in compactness, accuracy and detail.

Although your Regional Operations Engineer carries the major responsibility for the contents of the report, those involved in its preparation are attached to several Commission sections and divisions. The statistics section of the Division of Plant Operations compiled the information for the graphs and charts. The draughting section of the Division of Sanitary Engineering drew the graphs. The Division of Finance provided all cost data.

Only the close co-operation of these departments allowed the publication of this summary.

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'68 REVIEW

The average daily flow of 0.69 mgd was equal to 46% of the design flow of 1.5 mgd. The plant design flow was not exceeded at any time during the year.

The total operating cost for the year of \$53,844.38 was \$6,352.11 greater than that of the previous year. Unit costs for treating 1,000 gallons of water increased from 20 cents in 1967 to 21 cents in 1968.

PROJECT COSTS

NET CAPITAL COST (Final)

Goderich Town	\$1,001,579.07	
Deduct payments from municipality	<u>308,383.05</u>	\$693,196.02
Ontario Hospital	\$ -	
Deduct payments from Ontario Hospital	<u>\$ -</u>	
Long Term Debt to OWRC		<u>\$693,196.02</u>
The total cost to the municipality during 1968 was as follows:		
Debt Retirement		
Goderich Town	\$13,988.00	
Ontario Hospital	<u>-</u>	\$ 13,988.00
Reserve		
Goderich Town	\$ 4,947.15	
Ontario Hospital	<u>256.97</u>	\$ 5,204.12
Interest Charged		
Goderich Town	\$38,918.38	
Ontario Hospital	<u>-</u>	\$ 38,918.38
Net Operating		
Goderich Town	\$50,317.57	
Ontario Hospital	<u>3,526.81</u>	\$ 53,844.38
TOTAL		<u>\$111,954.88</u>

RESERVE ACCOUNT

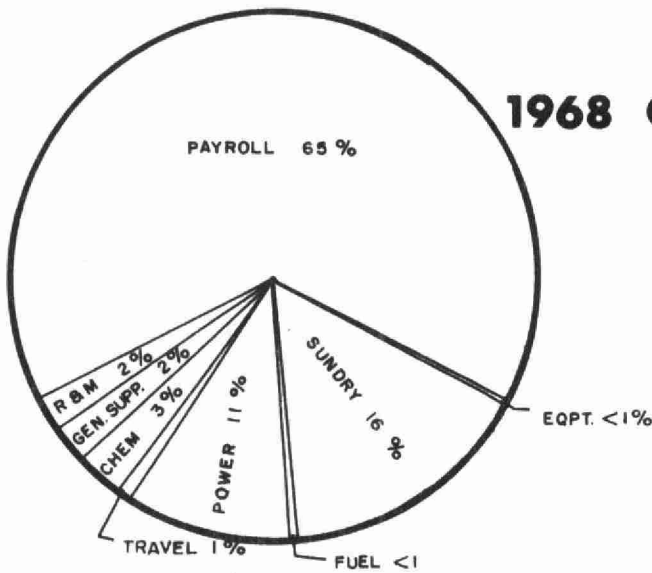
	<u>Total</u>	<u>Ontario Hospital</u>	<u>Town of Goderich</u>
Balance at January 1, 1968	\$34,088.83	\$1,989.98	\$32,098.85
Add: Payments in 1968	<u>5,204.12</u>	<u>256.97</u>	<u>4,947.15</u>
	\$39,292.95	\$2,246.95	\$37,046.00
Add: Interest earned on Reserve Funds in 1968	<u>2,133.53</u>	<u>116.03</u>	<u>2,017.50</u>
	\$41,426.48	\$2,362.98	\$39,063.50
Less Expenditures	<u>-</u>	<u>-</u>	<u>-</u>
Balance at December 31, 1968	<u><u>\$41,426.48</u></u>	<u><u>\$2,362.98</u></u>	<u><u>\$39,063.50</u></u>

Monthly Operating Costs

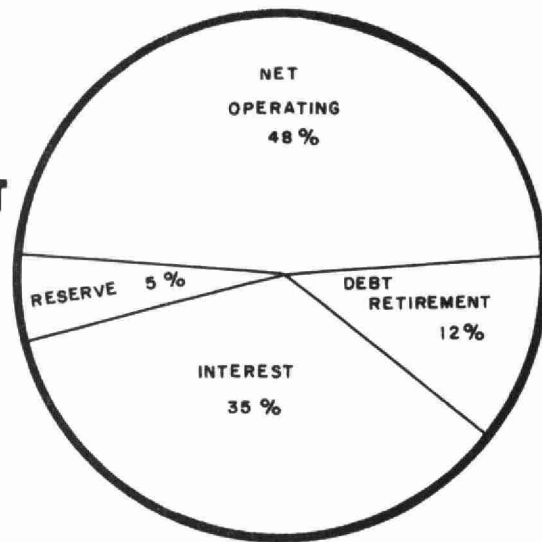
MONTH	TOTAL	PAYROLL	CASUAL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY	TRAVEL
JAN	2855.14	1981.87	226.79	-	522.32	-	11.16	-	113.00	-	-
FEB	3248.91	2289.64	191.77	-	530.80	-	180.54	-	14.23	13.79	28.14
MAR	5348.38	3472.02	331.43	-	537.80	607.86	29.37	-	224.16	145.74	-
APRIL	3410.31	2209.94	156.75	-	500.54	-	386.59	-	122.63	19.86	14.00
MAY	10258.56	2201.70	139.24	-	398.92	204.75	62.81	6.30	15.54	7105.51	123.79
JUNE	3379.48	2258.13	209.28	-	438.71	-	84.29	-	76.94	162.09	150.04
JULY	3206.25	2133.70	385.40	-	481.80	-	94.85	29.68	(2.89)	69.85	13.86
AUG	4343.16	3277.91	471.51	-	496.62	-	28.00	-	13.68	15.05	40.39
SEPT	3243.70	2399.28	244.30	-	477.68	-	88.80	-	-	17.26	16.38
OCT	3074.56	2228.79	121.73	130.20	400.82	-	28.00	72.82	42.97	25.00	24.23
NOV	4332.04	2187.66	139.24	-	432.10	204.75	91.49	-	193.17	1017.38	66.25
DEC	7143.89	5487.07	174.26	-	524.20	616.84	114.86	23.97	116.63	(3.71)	89.77
TOTAL	53844.38	32127.71	2791.70	130.20	5742.31	1634.20	1200.76	132.77	930.06	8587.82	566.85

BRACKETS INDICATE CREDIT

1968 OPERATING COSTS



TOTAL ANNUAL COST



Yearly Operating Costs

YEAR	M. G. TREATED	TOTAL COST	COST PER THOUSAND GALLONS
1964	293.96	\$36,979.00	\$0.13
1965	283.00	39,935.00	0.14
1966	270.56	44,799.00	0.17
1967	235.31	47,492.00	0.20
1968	252.91	53,844	0.21

Process Data

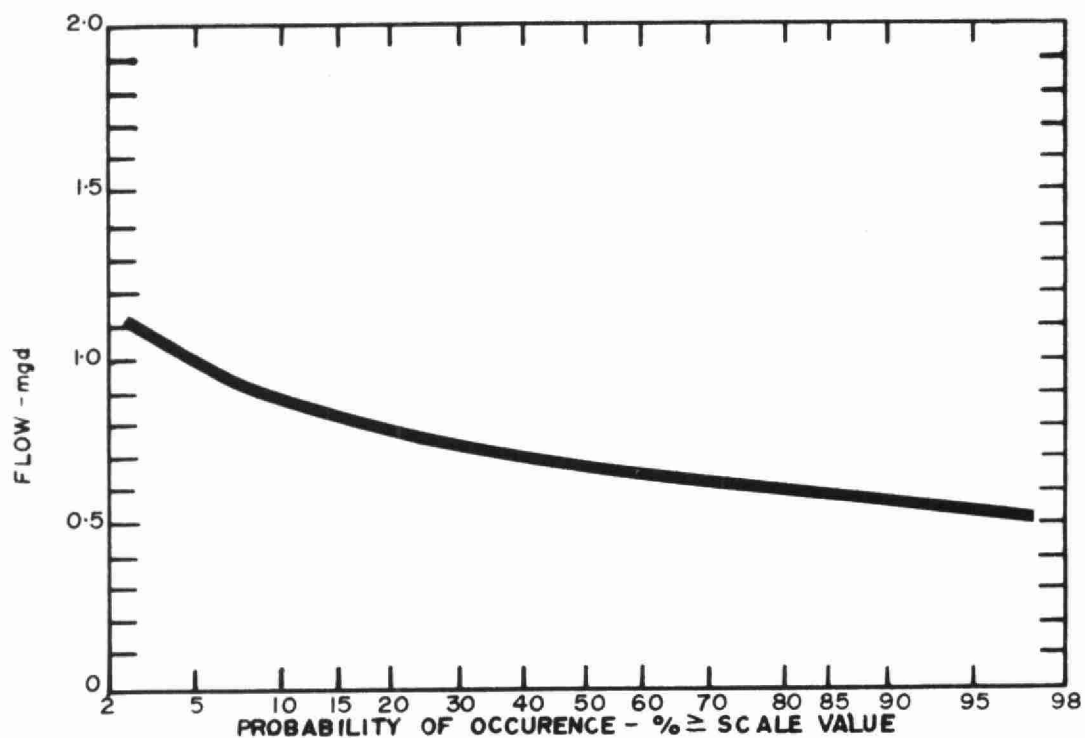
FLows

For the first time in six years, the total water consumption has shown an increase over the previous year's consumption. This is shown in the average daily flow chart on page 6. A high average daily flow of 0.83 mgd was registered in 1963, and since that time has steadily declined to a low average flow of 0.65 mgd in 1967. The average consumption increased 6.2 percent from 0.65 mgd in 1967 to 0.69 mgd in 1968.

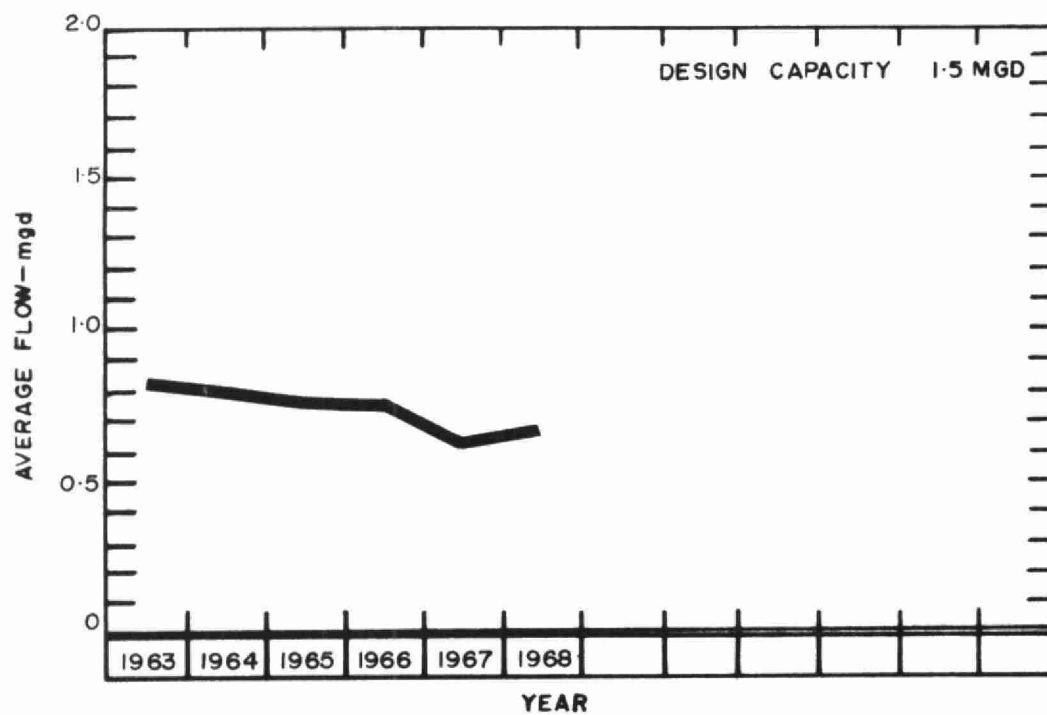
The maximum daily demands were recorded in the summer months of June, July and August at 1.49 mg, 1.24 mg and 1.12 mg respectively. Minimum daily demands were recorded in the winter and spring months of January, April and May at 0.42 mg, 0.49 mg and 0.44 mg respectively.

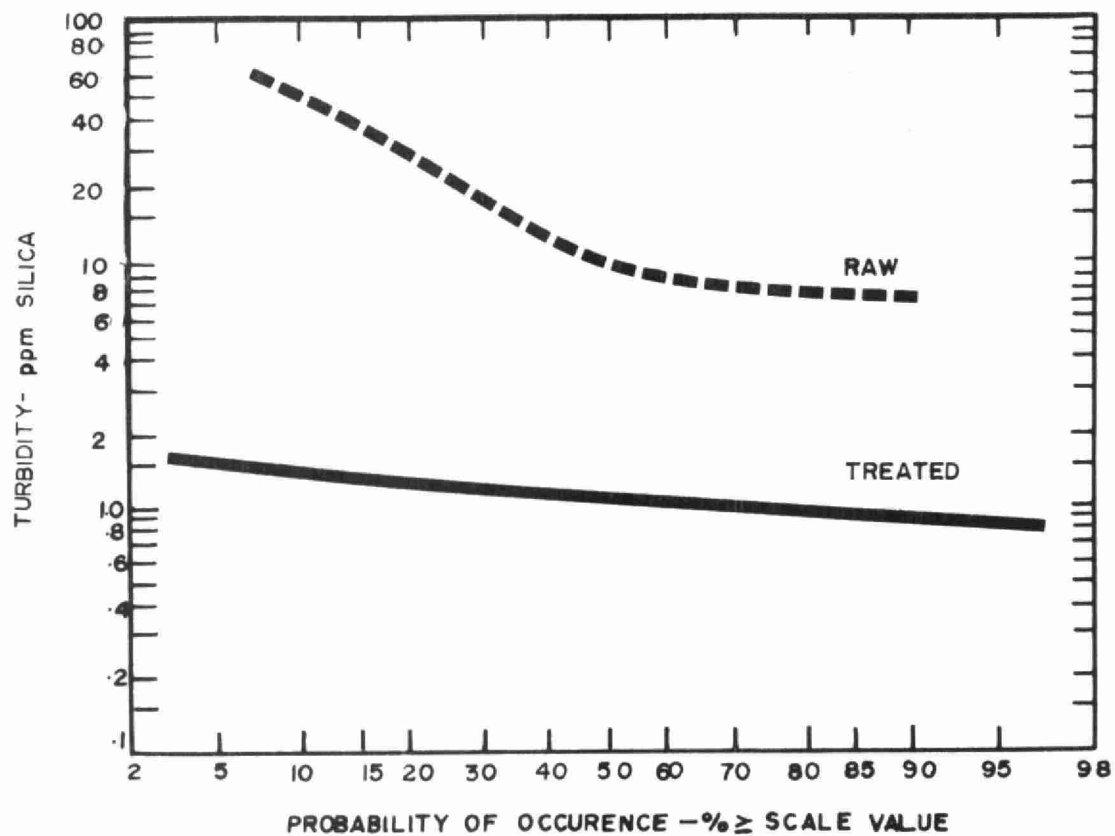
FLOW DATA

Month	Total Flow (MG)	Avg. Daily Flow (MGD)	Max. Daily Flow (MG)	Min Daily Flow (MG)
January	18.91	.59	.85	.42
February	17.80	.59	.67	.50
March	18.24	.57	.68	.49
April	17.20	.55	.66	.45
May	20.01	.60	.71	.44
June	24.24	.76	1.49	.53
July	26.90	.87	1.24	.62
August	24.49	.79	1.12	.65
September	22.86	.76	.91	.56
October	19.98	.64	.74	.52
November	20.50	.68	.86	.47
December	21.78	.70	.86	.68
Total	252.91			
Average	21.08	.69		

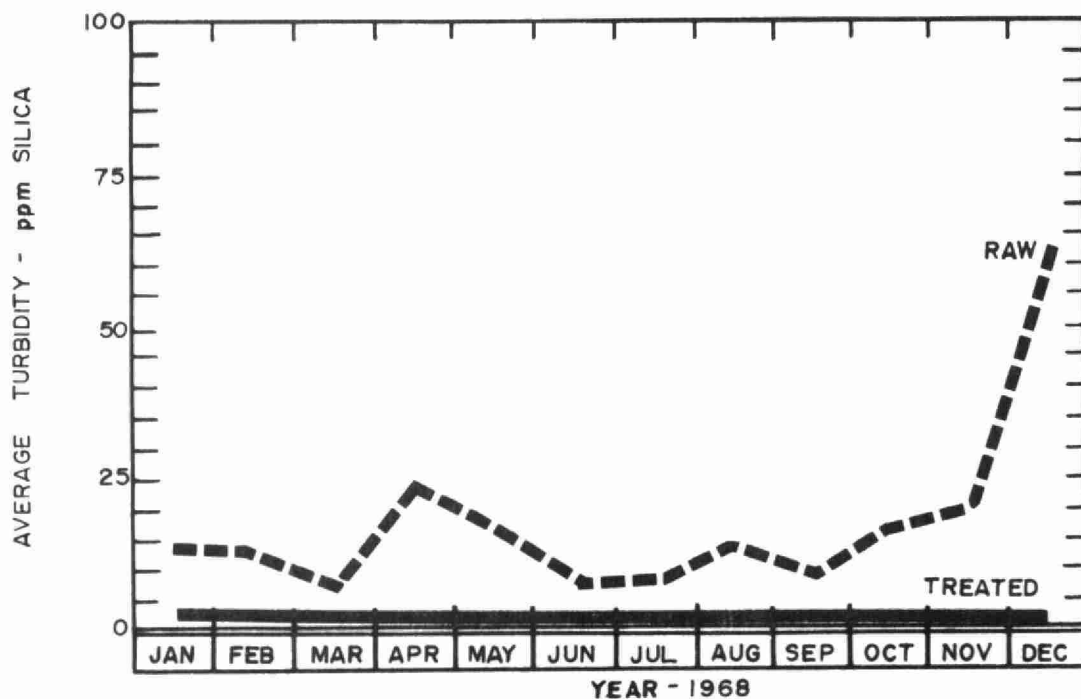


F L O W S





TURBIDITY



WATER QUALITY

CHEMICAL PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	No. of Samples	Avg.	Max.	Min.	No. of Samples	Avg.	Max.	Min.	
HARDNESS mg/l CaCO ₃	11	126	156	98	13	132	176	105	80-100
ALKALINITY mg/l CaCO ₃	11	103	131	82	18	99	148	71	30-100
IRON mg/l Fe	11	0.88	4.90	0.07	18	0.14	0.54	0.02	< 0.3
COLOUR Units	10	14	30	< 5	18	9	25	5	< 5
CHLORIDE mg/l Cl	11	13	22	8	18	14	25	7	< 250

COMMENTS

TURBIDITY

The turbidity in the raw water was less than 10 ppm, silica scale 50% of the time during the year. Treated water turbidity was at all times less than 1.8 ppm.

Aluminum sulphate is required only when the raw water turbidity exceeds 7 ppm, silica scale. As a result, alum was required 80% of the time during the year to aid the plant processes in the removal of turbidity.

PROCESS CHEMICALS

MONTH	Pounds Used	No. of Days Used	Dosage (mg/l)
January	2417	23	17.8
February	1019	4	18.2
March	813	8	17.8
April	2121	19	20.3
May	4752	30	24.5
June	4496	30	18.5
July	1702	16	12.2
August	4308	20	27.3
September	1308	15	11.5
October	2394	24	15.6
November	1699	18	13.9
December	5274	31	24.2
TOTAL	32303	-	-
AVERAGE	2692	-	18.6

COMMENTS

A total of 32,303 lbs. of alum at a dosage rate of 18.6 mg/l was used for the removal of turbidities from the raw water supply during the year. The greatest demand for alum occurred in the months of May, June and December in which 4,752 lbs., 4,496 lbs. and 5,274 lbs. were used respectively.

CHLORINATION AND DISINFECTION

MONTH	COLIFORM				CHLORINE		
	RAW WATER		TREATED WATER		Total Used (lbs.)	Prechlor. Dosage mg/l	Postchlor. Dosage mg/l
	No. of Samples Taken	Avg. Density No. /100ml	No. of Samples Taken	No. with Coliform 0/100 ml			
January	5	14	15	0	165.1	0.84	0.06
February	4	772	18	0	276.8	1.49	0.12
March	4	73	18	0	263.2	1.36	0.14
April	4	52	20	0	206.0	1.14	0.11
May	4	0	18	0	250.7	1.26	0.08
June	4	0	18	0	229.6	0.95	0.05
July	5	0	23	0	272.7	0.92	0.09
August	4	1	17	0	303.7	1.08	0.16
September	4	25	20	1	333.5	1.24	0.21
October	3	> 24	13	0	314.6	1.39	0.19
November	4	25	20	1	223.4	0.97	0.12
December	3	> 24	13	0	262.0	1.12	0.08
TOTAL	48	-	213	2	3101.3	-	-
AVERAGE	-	-	-	-	258.4	1.13	0.12

COMMENTS

An average pre-chlorination dosage of 1.13 mg/l of chlorine was required to maintain a residual of 0.2 mg/l throughout the treatment process. An additional post chlorination dosage of 0.12 mg/l was required to maintain a residual of 0.3 mg/l in the treated water.

A total of 261 bacteriological samples of raw and treated water were taken during the year. On only two occasions were bacti counts noted in the treated water. This was due probably to impurities at the sampling point in the distribution system.

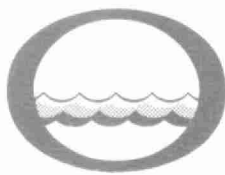
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CONCLUSIONS

The treated water quality was excellent throughout the year and met the OWRC standards at all times. Difficulties were not encountered during the year in supplying an adequate volume of treated water to the distribution system.



Water management in Ontario